

Appl No. 10/071,786
Response dated January 5, 2006
Reply to Office Action of Oct. 19, 2005

IN THE CLAIMS:

Please amend the claims to read as follows

- 1. (Currently amended) A toggle bolt device comprising:
- a) an elongated tool body having an outer surface with an at least partially threaded portion, first and second end portions and a central, longitudinal bore having a longitudinal axis and internal threads that is at least partially threaded, the first end portion of the body having a socket and a plurality of circumferentially spaced apart and radially extending slots that communicate with the socket radially extending from the socket to the outer surface of the tool body;
 - b) the tool body including a shaft that extends continuously through the longitudinal bore and having respective first and second end portions communicating with the body end portions, the shaft having external threads that engage the internal threads of the tool body, being at least partially externally threaded and the shaft being rotatable relative to the body about said longitudinal axis;
 - c) a plate that carries a plurality of locking members that each vary in thickness, each locking member having a thicker inner end portion and a thinner outer end portion, wherein the plate and the locking members are is attached to and rotates with the shaft at the first end portion of the body;
 - d) the locking members being movably attached to the plate, each locking member being rotatable: 1) relative to the plate and 2) about the shaft when the locking members move between extended and retracted positions responsive to a rotation of the shaft and plate relative to the tool body, the locking members extending radially beyond the outer surface of the body in the extended position and being pulled into contained within the body at the socket in the retracted position;
 - e) a nut that is connectable to the body with a at the partially threaded connection portion; and
 - f) wherein load transfer between the plate and the nut is via the plate, locking members, tool body and shaft.

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2. (Currently amended) The toggle bolt of claim 1 wherein there are at least three locking members ~~a nut that is connectable to the body at the partially threaded portion.~~

3. (Currently amended) A toggle bolt device comprising;

a) an elongated body having an outer surface with external threads ~~an at least partially threaded portion~~, first and second end portions and a central, longitudinal bore having a central longitudinal axis and internal threads that is at least partially threaded, the first end portion of the body having a socket and a plurality of circumferentially spaced apart radially extending slots that communicate with the socket;

b) the tool body including a shaft that extends through the bore and having respective first and second end portions communicating with the body end portions, the shaft having external threads that engage the internal threads of the tool body being at least partially externally threaded and rotatable relative to the body;

c) a plate mounted to the shaft, the plate and carrying a plurality of locking members that each vary in thickness, the locking members being movably are attached to the plate in between the plate and the external threads of the tool body shaft at the first end portion of the body, the locking members being attached to the first end portion of the shaft;

d) the locking members being movable between extended and retracted positions in a plane that is generally perpendicular to the central longitudinal axis and responsive to a rotation of the shaft and the plate relative to the tool body, the locking members being rotatable: 1) relative to the plate and 2) about the shaft and extending radially beyond the outer surface of the body in the extended position and being pulled into ~~contained within~~ the body at the socket in the retracted position;

e) wherein the locking members have curved outer surfaces; ~~and~~

f) a nut that is connectable to the external threads of the body ~~at the partially threaded portion; and~~

g) wherein the combination of tool body and shaft extends continuously from the plate to the nut, enabling load transfer between the plate and the nut via the shaft.

4. (Currently amended) A toggle bolt device comprising;

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- a) an elongated body having an outer surface with an at least partially threaded portion, first and second end portions and a central, longitudinal bore that is at least partially threaded, the first end portion of the body having a socket and a plurality of circumferentially spaced apart slots that communicate with the socket;
- b) the tool body including a shaft that extends through the bore and having respective first and second end portions communicating with the body end portions, the shaft being at least partially externally threaded and rotatable relative to the body;
- c) a plate attached to the second end portion of the shaft for rotation therewith;
- d) ~~c)~~ a plurality of locking members that each vary in thickness, the locking members each being are attached to the plate shaft at the first end portion of the body, the locking members ~~being attached to the first end portion of the shaft;~~
- e) ~~d)~~ the locking members being rotatable: 1) relative to the plate and 2) about the shaft and movable between extended and retracted positions responsive to a rotation of the shaft and plate, the locking members extending radially beyond the outer surface of the tool body outer surface in the extended position and being pulled into ~~contained within~~ the tool body at the socket in the retracted position;
- f) ~~e)~~ a nut that is connectable to the external threads ~~body at the partially threaded portion;~~ and
- g) ~~f)~~ wherein the body has curved camming surfaces at the socket that are positioned to guide movement of the locking members as they travel between the extended and retracted positions; and
- h) ~~g)~~ wherein the shaft ~~extends continuously from~~ attaches to the plate ~~to the nut,~~ enabling load transfer between the plate and the nut via the locking members, shaft and tool body.

5. (Currently amended) A toggle bolt device comprising;
- a) an elongated tool body having an outer surface with an at least partially threaded portion, first and second end portions and a central, longitudinal bore having internal threads ~~that is at least partially threaded,~~ the first end portion of the body having a socket and a plurality of

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circumferentially, radially extending spaced apart slots that communicate with the socket;

b) a shaft that extends through the bore and having respective first and second end portions communicating with the body end portions, the shaft having external threads that engage the internal threads of the tool body, the shaft being being at least partially externally threaded and rotatable relative to the tool body;

c) a plate attached to the second end portion of the shaft for rotation therewith;

d) ~~c)~~ a plurality of locking members that each vary in thickness, the locking members are attached to the plate ~~shaft at the first end portion of the body, the locking members being attached to the first end portion of the shaft;~~

e) ~~d)~~ the locking members being rotatable: 1) relative to the plate and 2) about the shaft and movable between extended and retracted positions responsive to a rotation of the shaft and in a plane that is generally perpendicular to the central longitudinal shaft, the locking members extending radially beyond the outer surface of the body in the extended position and being contained within the body at the socket in the retracted position;

f) ~~e)~~ a nut that is connectable to the tool ~~second end portion of the body at the external threads~~ partially threaded portion; and

g) ~~f)~~ ~~a plate attached to the shaft, the locking members being mounted on the plate; and~~

g) wherein the tool body and shaft extends continuously from the plate to the nut, enabling load transfer between the plate and the nut via the tool body, locking members, and shaft.

6. (Original) The toggle bolt of claim 5 wherein the shaft has a first threaded portion that connects with the plate and a second threaded portion that engages the body.

7. (Currently amended) A toggle bolt device comprising;

a) an elongated tool body having an outer surface with external threads ~~an at least partially threaded portion~~, first and second end portions and a central, longitudinal bore having internal threads that is at least partially threaded; the first end portion of the body having a socket and a plurality of circumferentially spaced apart and radially extending slots that communicate with the socket;

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b) a shaft that extends through the bore and having respective first and second end portions communicating with the body end portions, the shaft having external threads that engage the internal threads of the tool body, the shaft being being at least partially externally threaded and rotatable relative to the tool body;

c) a plate carrying a plurality of locking members that each vary in thickness, the ~~locking members~~ and plate being attached to the shaft at the first end portion of the tool body, the plate and locking members being pivotally attached to the plate first end portion of the shaft;

d) the locking members being rotatable: 1) relative to the plate and 2) about the shaft and movable between extended and retracted positions responsive to a rotation of the shaft and plate, the locking members extending radially beyond the outer surface of the body in the extended position and being contained within the body at the socket in the retracted position;

e) a nut that is connectable to the body external threads ~~at the partially threaded portion~~; and

f) wherein the shaft has a tool receptive portion at one end thereof that enables rotation of the shaft relative to the body; and

g) wherein the shaft and tool body extends continuously from the plate to the nut, enabling load transfer between the plate and the nut via the plate, locking members, tool body and shaft.

8. (Original) The toggle bolt of claim 1 wherein the nut engages the body generally opposite the locking members.

9. (Original) The toggle bolt of claim 1 wherein the shaft moves linearly relative to the central longitudinal axis of the body when the shaft is rotated.

10. (Currently amended) A fastener for joining two members together, each member having an opening therethrough of a selected diameter, comprising;

a) an elongated body having an outer surface with an at least partially threaded portion, first and second end portions and a central, longitudinal bore that is partially threaded, the first end portion of the body having a socket and a plurality of circumferentially spaced apart, radially extending slots that communicate with the socket;

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b) a shaft that extends through the bore and having respective first and second end portions communicating with the body end portions, the shaft being partially externally threaded and rotatable relative to the body, the partially externally threaded portion of the shaft engaging the threaded portion of the bore;

c) a plate carrying a plurality of locking members that each engage the plate, the plate ~~and locking members~~ being attached to the shaft at the first end portion of the body, the plate ~~and locking members being attached to the first end portion of the shaft~~;

d) the plate and locking members being movable between extended and retracted positions responsive to a rotation of the shaft relative to the tool body, the locking members being rotatable: 1) relative to the plate and 2) about the shaft and extending radially beyond the outer surface of the body and the selected diameter in the extended position and being pulled into ~~contained within~~ the body at the socket and inside the selected diameter in the retracted position;

e) a nut that is connectable to the body at the external threads ~~partially threaded portion~~; and

f) wherein the combination of tool body and shaft extends continuously from the plate to the nut, enabling load transfer between the plate and the nut via the locking members, tool body and shaft.

11. (Currently amended) A bolt apparatus comprising;

a) an elongated tool body having an outer surface with external threads ~~an at least partially threaded portion~~, first and second end portions and a central, longitudinal bore having internal threads that is at least partially threaded; the first end portion of the body having a socket and a plurality of circumferentially spaced apart slots that communicate with the socket;

b) a shaft that extends through the bore and having respective first and second end portions positioned next to communicating with the respective body end portions, the shaft having external threads that engage the tool body internal threads ~~being at least partially externally threaded and being~~ rotatable relative to the tool body;

c) a plate ~~carrying a plurality of locking members~~ attached to the shaft next to the first end portion of the body, the plate having a plurality of ~~and locking members being attached~~

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thereto at to the first end portion of the shaft;

d) the locking members being rotatable: 1) relative to the plate and 2) about the shaft and movable between extended and retracted positions responsive to a rotation of the shaft, the locking members extending radially beyond the outer surface of the body in the extended position and being pulled into ~~contained within~~ the body at the socket in the retracted position;

e) a nut that is connectable to the body external threads ~~at the partially threaded~~ portion; and

f) wherein the combination of tool body and shaft extends continuously from the plate to the nut, enabling load transfer between the plate and the nut via the plate, locking members, tool body and shaft.

12. (Previously presented) The bolt apparatus of claim 11 wherein there are at least three locking members a nut that is connectable to the body at the partially threaded portion.

13. (Currently amended) A bolt apparatus comprising;

a) an elongated tool body having an outer surface with external threads ~~an at least partially threaded~~ portion, first and second end portions and a central, longitudinal bore having internal threads ~~that is at least partially threaded~~, the first end portion of the body having a socket and a plurality of circumferentially spaced apart slots that communicate with the socket;

b) a shaft that extends through the bore and having respective first and second end portions communicating with the body end portions, the shaft having external threads that engage the tool body internal threads ~~being at least partially externally threaded~~ and the shaft and plate ~~being~~ rotatable together relative to the body;

c) a plate carrying a plurality of locking members attached thereto ~~to the shaft~~ next to the first end portion of the body, ~~the locking members being attached to the first end portion of the shaft;~~

d) the locking members being rotatable: 1) relative to the plate and 2) about the shaft and movable between extended and retracted positions responsive to a rotation of the shaft, the locking members extending radially beyond the outer surface of the body in the extended position and being contained within the body at the socket in the retracted position;

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e) wherein the locking members have curved outer surfaces;
f) a nut that is connectable to the body at the partially threaded portion; and
g) wherein the combination of tool body and shaft extends continuously from the plate to the nut, enabling load transfer between the plate and the nut via the plate, locking members, tool body and shaft.

14. (Currently amended) A bolt apparatus comprising;

a) an elongated body having an outer surface with an at least partially threaded portion, first and second end portions and a central, longitudinal bore that is at least partially threaded, the first end portion of the body having a socket and a plurality of circumferentially spaced apart slots that communicate with the socket;

b) a shaft that extends through the bore and having respective first and second end portions communicating with the body end portions, the shaft being at least partially externally threaded and rotatable relative to the body;

c) a plate attached to the first end portion of the shaft for rotation therewith, the plate carrying a plurality of locking members that each vary in thickness, the plate and locking members being, being attached to the plate shaft at the first end portion of the body, the plate and locking members being attached to the first end portion of the shaft;

d) the locking members being rotatable: 1) relative to the plate and 2) about the shaft and movable between extended and retracted positions responsive to a rotation of the shaft, the locking members extending radially beyond the outer surface of the body in the extended position and being contained within the body at the socket in the retracted position;

e) a nut that is connectable to the external threads of the tool body body at the partially threaded portion;

f) wherein the tool body has curved camming surfaces at the sockets that are positioned to guide movement of the locking members as they travel between the extended and retracted positions; and

g) wherein the a combination of the tool body and shaft extends continuously from the plate to the nut, enabling load transfer between the plate and the nut via the plate, locking

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members, tool body and shaft.

15. (Currently amended) A bolt device comprising;
- a) an elongated body having an outer surface with an at least partially threaded portion, first and second end portions and a central, longitudinal bore that is at least partially threaded, the first end portion of the body having a socket and a plurality of circumferentially spaced apart slots that communicate with the socket;
 - b) a shaft that extends through the bore and having respective first and second end portions communicating with the body end portions, the shaft being at least partially externally threaded, the externally threaded portions of the shaft engaging the internally threaded portion of the tool body and the shaft being rotatable relative to the body;
 - c) a plate attached to the second end portion of the shaft for rotation therewith;
 - d) ~~c)~~ a plurality of locking members, each attached to the plate ~~shaft~~ next to the first end portion of the body, the locking members being attached to the first end portion of the shaft;
 - e) ~~d)~~ the locking members being rotatable: 1) relative to the plate and 2) about the shaft and movable between extended and retracted positions responsive to a rotation of the shaft, the locking members extending radially beyond the outer surface of the body in the extended position and being contained within the body at the socket in the retracted position;
 - f) ~~e)~~ a nut that is connectable to the ~~second end~~ externally threaded portion of the tool body at the partially threaded portion; and
 - f) ~~—~~ a plate attached to the first end portion of the shaft, the locking members being mounted on the plate; and
 - g) wherein the combination of tool body and shaft extends continuously from the plate to the nut, enabling load transfer between the plate and the nut via the plate, locking members, tool body and shaft.

16. (Previously presented) The toggle bolt of claim 5 wherein the shaft has a first threaded portion that connects with the plate and a second threaded portion that engages the body.

17. (Currently amended) A toggle bolt device comprising;

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a) an elongated body having an outer surface with an externally ~~at least partially~~ threaded portion, first and second end portions and a central, longitudinal bore having internal threads ~~that is at least partially threaded~~, the first end portion of the body having a socket and a plurality of circumferentially spaced apart slots that communicate with the socket;

b) a continuous shaft that extends through the bore and having respective first and second end portions communicating with the body end portions, the shaft being at least partially externally threaded and connected to the internal threads of the tool body and rotatable relative to the body;

c) a plate that carries a plurality of locking members, each attached to the plate ~~the plate attached to the shaft next to the first end portion of the body, the locking members being attached to the first end portion of the shaft;~~

d) the locking members being rotatable: 1) relative to the plate and 2) about the shaft ~~and~~ movable between extended and retracted positions responsive to a rotation of the shaft and the plate, the locking members extending radially beyond the outer surface of the body in the extended position and being contained within the body at the socket in the retracted position;

e) a nut that is connectable to the body at the externally ~~partially~~ threaded portion;

f) wherein the shaft has a tool receptive portion at one end thereof that enables rotation of the shaft relative to the body; and

g) wherein the shaft extends continuously from the plate to the nut, enabling load transfer between the plate and the nut via the plate, locking members, tool body and ~~shaft~~.

18. (Previously presented) The bolt of claim 1 wherein the nut engages the body generally opposite the locking members.

19. (Previously presented) The bolt of claim 1 wherein the shaft moves linearly relative to the central longitudinal axis of the body when the shaft is rotated.

20. (Currently amended) A fastener for joining two members together, each member having an opening therethrough of a selected diameter, comprising;

a) an elongated tool body having an outer surface with external threads ~~an at least partially threaded~~ portion, first and second end portions and a central, longitudinal bore having

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internal threads that is ~~partially threaded~~, the first end portion of the body having a socket and a plurality of circumferentially spaced apart, radially extending slots that communicate with the socket;

b) a shaft that extends through the bore and having respective first and second end portions communicating with the body end portions, the shaft having external threads that engage the tool body internal threads, the shaft being being partially externally threaded and rotatable relative to the body, ~~the partially externally threaded portion of the shaft engaging the threaded portion of the bore;~~

c) a plate and a plurality of locking members that are attached to the shaft at the first end portion of the body, the plate rotating with the shaft;

d) a plurality of the locking members, each attached to the plate and being rotatable:
1) relative to the plate and 2) about the shaft and movable between extended and retracted positions responsive to a rotation of the shaft and plate relative to the tool body, the locking members extending radially beyond the outer surface of the body ~~and the selected diameter~~ in the extended position and being contained within the body at the socket ~~and inside the selected diameter~~ in the retracted position;

e) a nut that is connectable to the body external threads ~~at the partially threaded portion;~~ and

f) wherein the combination of tool body and shaft extends continuously from the plate to the nut, enabling load transfer between the plate and the nut via the plate, locking members, tool body and shaft.